

1. A method of phosphorous reduction in stormwater runoff comprising the steps of:

- (a) channeling a fluid runoff into a fluid retention area;
- 5 (b) filtering the fluid runoff through iron humate to absorbing phosphorous from the fluid runoff with the iron humate to create filtered fluid runoff; and,
- 10 (c) discharging the filtered fluid runoff out of the fluid retention area.

2. The method of CLAIM 1, wherein the fluid runoff is stormwater runoff from non-point sources, the non-point sources include any one of a dairy farm or a sugar cane field.

15 3. The method of CLAIM 1, wherein fluid retention area includes a retention pond.

4. The method of CLAIM 1, wherein the fluid retention area includes a wetland reservoir; and further comprising the step of:

20 (d) fertilizing the wetland reservoir with iron humate to promote vegetation growth.

5. The method of CLAIM 1, wherein the retention area is an agricultural ditch.

6. The method of CLAIM 1, further comprising the step of:

5 (d) periodically replacing the iron humate with fresh iron humate.

7. The method of CLAIM 6, wherein the step (b) is carried out while the fluid runoff is in the fluid retention area.

10 8. The method of CLAIM 1, further comprising the step of:

(d) prior to the step (b), pumping the fluid runoff into a iron humate filter;

wherein the step (b) is carried out after the step

15 (d).

9. The method of CLAIM 1, wherein the step (b) is carried out while the fluid runoff is in the fluid retention area wherein:

the step (b) comprises the steps of:

20 (b1) filtering the fluid runoff through the iron humate in a first iron humate wall, baffle or mound to absorb the phosphorous found in the

fluid runoff to create first filtered fluid runoff; and,

(b1) filtering the first filtered fluid runoff through the iron humate in a second iron humate wall, baffle or mound to absorb the phosphorous found in the first filtered fluid runoff.

5 10. An iron humate filter comprising:

(a) a mesh cage housing having mesh cage walls;

(b) a geotextile fabric lining the mesh cage housing; and,

(c) iron humate enclosed in the mesh cage housing wherein fluid is adapted to flow through the mesh cage housing and the geotextile fabric to the iron humate where phosphorous is absorbed or chemically retained.

15 11. The filter of CLAIM 10, wherein the mesh cage housing includes:

a mesh opening of approximately 3" x 3" with a mesh wire of approximately 0.106 - US gauge 12 (2.7 mm).

20 12. The filter of CLAIM 10, wherein the mesh cage housing has a length of approximately 6 feet, a width of approximately 3 feet, a height of approximately 3 feet.

13. The filter of CLAIM 10, wherein the mesh cage housing comprises a plurality of mesh divider walls creating compartments for placement of the iron humate.

14. The filter of CLAIM 10, wherein the mesh cage 5 housing comprises a mesh cage lid.

15. The filter of CLAIM 14, wherein the iron humate is removably coupled in the mesh cage housing.

16. The filter of CLAIM 10, wherein the mesh cage housing comprises a handle for lifting the mesh cage 10 housing.

17. The filter of CLAIM 10, wherein the geotextile fabric has a permittivity of about 100 to about 200 gal/SF/min.

18. The filter of CLAIM 10, wherein the mesh cage 15 housing comprises:

a rigid frame made of steel or aluminum; and,  
an expandable mesh affixed to the rigid frame to create the mesh cage walls.

19. The filter of CLAIM 10, wherein the mesh cage 20 housing is coated and adapted to be submerged in fluid.